

### REMARKS

Claims 1-45 are pending in the present application. Claims 1-39 are original. None of Claims 1-39 have been currently amended. Claims 40-45 are newly added claims. Support for the amendment may be found throughout the specification and drawings.

#### REJECTIONS UNDER 35 U.S.C. §102

The Patent Office rejected Claims 1-4, 7, 15-18, 23-24, 27 and 34-36 under 35 U.S.C. §102(a) as being allegedly anticipated by Eilts et al., EP 1 320 232 (hereinafter “Eilts”). The rejection is respectfully traversed in its entirety.

Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration. *W.L. Gore & Assocs. v. Garlock*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). Further, “anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim.” *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984) (citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)) (emphasis added).

Independent Claim 1 and Eilts address different problems. Claim 1 tries to mitigate the deleterious effects (e.g., intersymbol interference (ISI) and channel estimation errors) of excess delay spread (i.e., when a delay spread is greater than the cyclic prefix length) (see, e.g., paragraphs [1004]-[1007], pages 1-3, Specification). In contrast, Eilts tries to solve the problem of phase noise degradations associated with intercarrier interference (ICI) (see Eilts, paragraph [0006] at page 2). It is well known ISI is *different* from ICI.

Furthermore, Claim 1 recites, among other things, elements “obtaining at least two groups of received pilot symbols for at least two sets of pilot subbands, one group of received

pilot symbols for each set of pilot subbands, wherein each of the at least two sets of pilot subbands is used for pilot transmission in a different symbol period” and “wherein the overall channel impulse response estimate comprises more taps than the number of pilot subbands in each of the at least two sets of pilot subbands” (emphasis added). Applicants respectfully submit that *none* of these elements are taught, disclosed or suggested by Eilts. Indeed, after a diligent search, the word “tap” is not even found in Eilts. Nowhere in Eilts is it taught or suggested “wherein the overall channel impulse response estimate comprises more taps than the number of pilot subbands in each of the at least two sets of pilot subbands” (emphasis added), as recited in Claim 1. Moreover, Claim 1 utilizes “at least two sets of pilot subbands” “for pilot transmission.” This is supported, for example, by “a staggered pilot transmission scheme ... us[ing] two sets of pilot subbands, with each set containing  $N_{cp}$  pilot subbands. The pilot subbands in the first set are staggered or offset from the pilot subbands in the second set” (Specification, paragraph [1007] at page 2) and by FIGs. 5, 9A and 9B. In contrast, Eilts discloses training tones over several bursts (Eilts, paragraphs [0031] and [0032] at page 4). Eilts fails to teach or suggest “at least two sets of pilot subbands” recited in Claim 1, because Eilts’ training tones over several bursts may be carried using just a single set of pilot subbands.

At least based on these reasons, Claim 1 is allowable.

Independent Claims 27, 34, and 40 each recite elements similar to the foregoing-described elements of Claim 1 and are thus allowable.

As a result, all dependent claims are also allowable.

REJECTIONS UNDER 35 U.S.C. §103

Claims 5, 6, 8, 19-22, 25, 26, 28, 29, 32, 33, 38 and 39 were rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over Eilts in view of Li, U.S. Patent No. 6,654,429 ("Li") or Hutter et. al, *Channel estimation for mobile OFDM system* ("Hutter"). These rejections are respectfully traversed in their entirety.

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." (emphasis added) (MPEP § 2143). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. (emphasis added) *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

As indicated in the foregoing section REJECTIONS UNDER 35 U.S.C. §102, Eilts fails to teach, disclose, or suggest all the elements of independent Claims 1, 27, 34, and 40. Furthermore, Applicants herein respectfully submit that all the elements of independent Claims 1, 27, 34, and 40 are also *not* taught, disclosed, or suggested by Eilts in view of Li or Hutter. Thus, all independent Claims 1, 27, 34, and 40 are allowable.

As a result, all dependent claims are also allowable.

#### ALLOWABLE SUBJECT MATTER

Applicants thank the Examiner for indicating that the subject matter of Claims 9-14, 30, 31 and 37 is allowable.

**CONCLUSION**

In light of the amendments contained herein, Applicants respectfully submit that the application is in condition for allowance, for which early action is requested.

Please charge any fees or overpayments that may be due with this response to Deposit Account No. 17-0026.

Respectfully submitted,

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By: 

Peng Zhu, Reg. No. 48,063  
(858) 658-2389

QUALCOMM Incorporated  
Attn: Patent Department  
5775 Morehouse Drive  
San Diego, California 92121-1714  
Telephone: (858) 658-5787  
Facsimile: (858) 658-2502